
ISDN QSIG Call Diversion Notification

ISDN QSIG Call Diversion Notification allows the Meridian 1 to provide notification to the originating calling party and forwarded-to (diverted) party when a call is forwarded over an ISDN QSIG private network. With this feature, call diversion is invoked by the following triggers:

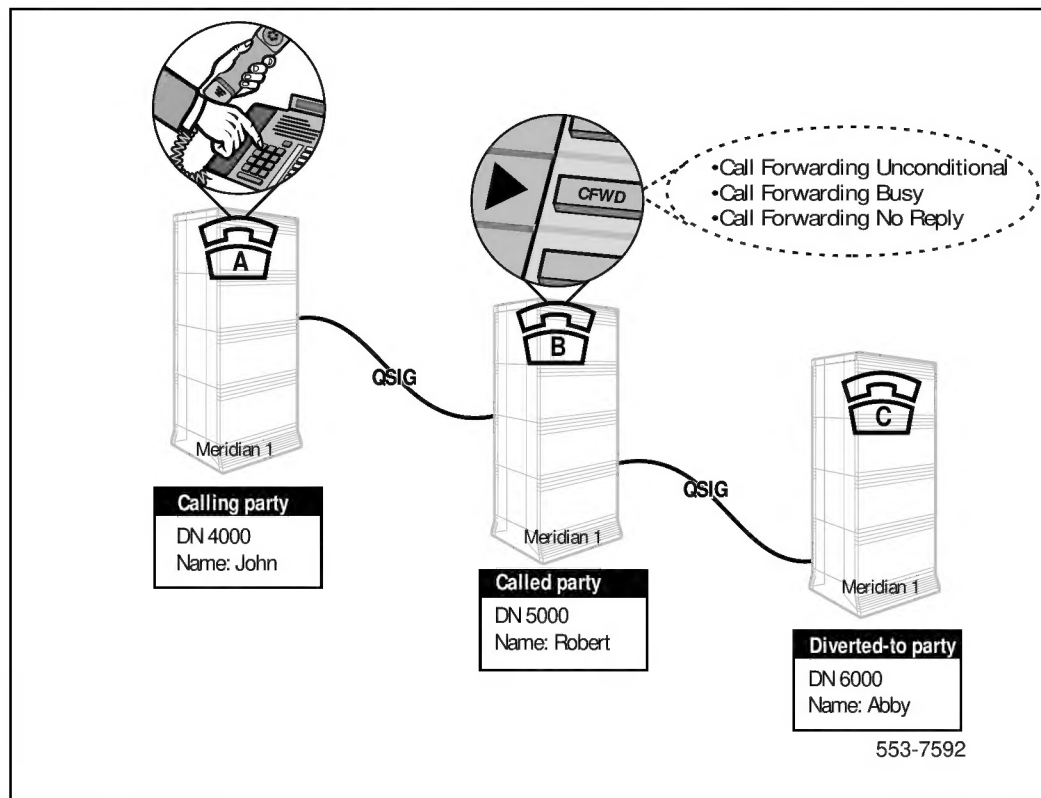
- Call Forwarding Busy (CFB) - the called set is in use
- Call Forwarding No Reply (CFNR) - the called set does not answer after a given number of rings
- Call Forwarding Unconditional (CFU) - the called set is forwarded as soon as the set is reached

With this feature, notification can be provided to the calling party and the forwarded-to (diverted) party that call diversion has occurred. When provisioned, call diversion notification is displayed on the calling party's set and on the forwarded-to (diverted) party's set according to the existing terminal display configuration.

Diversion notification provided to the calling and forwarded-to (diverted) party depends on the subscription options (Class of Service) configured on the called party's set. The called party can configure two diversion options. One Class of Service option is applicable to the calling party and the other option is applicable to the forwarded-to (diverted) party. These new Classes of Service determine if call diversion notification is provided to the calling party and the forwarded-to party and what type of diversion information these parties receive.

Figure 38 shows an example of a Call Diversion environment.

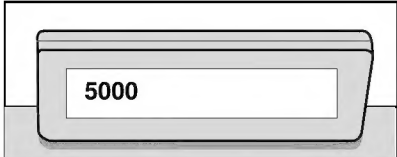
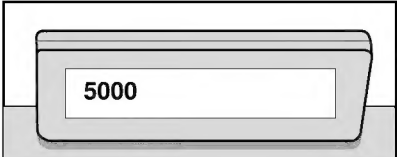
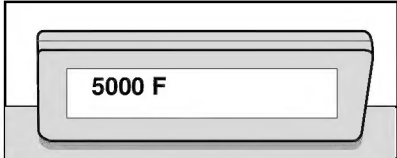
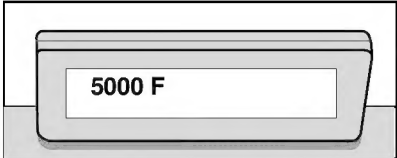
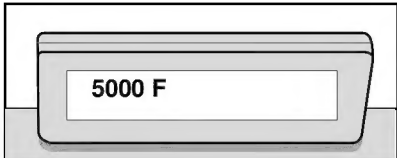
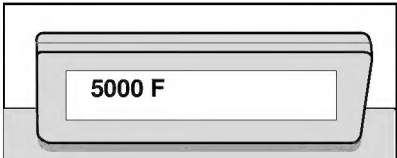
Figure 38
Call Diversion Environment



Calling Party's Notification

The calling party that originates the call receives notification of call diversion depending on the configuration of the called party's set. As shown in Table 52, the called party configures one of the three possible Classes of Service.

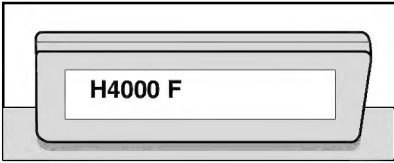
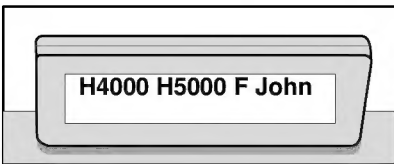
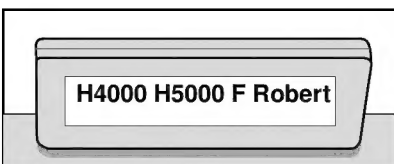
Table 52
Calling Party's Notification

Called Party's Diversion Subscription Options (Class of Service)	Calling Party's Display when call is forwarded.	Forwarded-to Party's Display
CLS = DNO1 No diversion notification provided to calling party.		
CLS = DNO2 Diversion notification provided without forwarded-to (diverted) party's number and name.		
CLS = DNO3 (default) Diversion notification provided with forwarded-to (diverted) party's number and name when available.		

Called Party's Notification

The forwarded-to (diverted) party receives notification of call diversion depending on the configuration of the called party's set. As shown in Table 53, the called party configures one of the two possible Classes of Service.

Table 53
Forwarded-to Party's Notification

Called Party's Diversion Subscription Options (Class of Service)	Forwarded-to Party's Display.	Forwarded-to Party's Class of Service
DNDN = No Called party's number and name are not released to the forwarded-to (diverted) party.		DNDD = Dialed Name Display Denied (default)
DNDY = Yes (default) Called party's number and name are released to forwarded-to (diverted) party.		DNDD = Dialed Name Display Denied (default)
DNDY = Yes (default) Called party's number and name are released to forwarded-to (diverted) party.		DNDA = Dialed Name Display Allowed

On the forwarded-to (diverted) party's set, the Dialed Name Display Allowed/Denied (DNDA/DNDD) Class of Service allows the forwarded-to (diverted) party to choose the name displayed after call diversion. If the forwarded-to (diverted) party configures a Dialed Name Display Allowed (DNDA) Class of Service their display shows one of the following:

- the original called party's name when available; or
- if the original called party's name is not available, the redirecting name when available; or
- if neither of the two previous names are available, then nothing is displayed.

If the forwarded-to (diverted) user has configured a Dialed Name Display Denied (DNDD) Class of Service then the calling party's name is displayed if available. Otherwise, nothing is displayed.

Operating parameters

A Meridian 1 user cannot remotely activate or deactivate QSIG Call Diversion Notification from either a Meridian 1 or on another third party Private Branch Exchange (PBX).

As per the current operation of the Call Forward features, the Meridian 1 does not provide any indication, such as an LED, on the called party's set that call diversion has been activated.

The validity of the forwarding number is not supported. If an invalid forwarding directory number is dialed no verification is provided by the system.

The calling party is notified each time a call redirection occurs, provided this information is supplied by the network. If previous call diversion notification is provided, then it is replaced by last received. If call redirection occurs and no call redirection information is provided by the network, then any notification information that has previously been provided remains unchanged.

When a call redirection occurs no call diversion information is provided by the network. However, if a previous notification has been provided then the call diversion information remains unchanged.

The maximum allowable size of QSIG name information is 50 characters. With the Call Party Name Display feature, only 27 characters string length is supported. Accordingly, names processed by the Meridian 1 may be truncated.

Across a network, it is not possible to prevent reciprocal Call Forward from occurring. However, the capabilities of the Flexible Orbiting Prevention Timer and Total Redirection Count features can be used.

QSIG Call Diversion Notification requires Coordinated Dialing Plan (CDP) or Uniform Dialing Plan (UDP). Digit manipulation is not supported.

Interworkings with Meridian Customer Defined Network (MCDN) call redirection and QSIG Call Diversion Notification is not supported.

Interaction with Meridian Mail and this feature is not supported.

Feature packaging

QSIG Call Diversion Notification is ISDN QSIG Supplementary Service - Call Completion (QSIG-SS) package 316 which has the following dependencies:

- QSIG Interface (QSIG) package 263
- Calling Party Name Display (CPND) package 95
- Digit Display (DDSP) package 19
- ISDN QSIG-GF Transport (QSIG-GF) package 305
- Coordinated Dialing Planing (CDP) package 59 or Uniform Dialing Plan (UDP) package 58

On a 1.5 Mbps PRI interface the following packages are required:

- Integrated Services Digital Network (ISDN) package 145
- Multipurpose Serial Data Link (MSDL) package 222

Feature implementation

The QSIG Call Diversion Notification feature requires the configuration of one of the following call redirection features: Call Forward All Calls, Call Forward/Hunt Override Via Flexible Feature Codes, Call Forward Remote (Attendant and Networkwide), Call Forward No Answer/Flexible Call Forward No Answer, Call Forward No Answer Second Level, Call Forward Internal Calls and User Selectable Call Redirection. The implementation of these features is not modified.

Remote Capability Meanings

Table 54 indicates the remote capabilities meanings for D-channel routes. When using Table 54 consider the following:

- Only nodes subject to be Originating, Served, Diverted or Rerouting nodes with respect to QSIG Call Diversion Notification need to have diversion remote capability configured. Transmit nodes pass the information transparently.
- When choosing the Operation Coding Choice, the interface type should be considered. When the QSIG interface used is ISO (IFC ISGF), operations are mostly coded with Integer Values.

Only one remote capability allows the QSIG Diversion configuration on a D-channel route. This remote capability gathers the three following possibilities for the D-channel route:

- 1** coding of operations sent to the remote switch, which can be coded as either as Object Identifier or as Integer Value. If coded as Object Identifier, the remote capability ends with an 'O', whereas for Integer Value, the remote capability ends with an 'I'. This means that remote capabilities explained below in 2 and 3 are defined twice.
- 2** sending of QSIG Diversion Notification Information to the remote switch: this information is sent only if the remote capability is of first or third type, i.e. DV1x or DV3x, where the x is either 'I' or 'O' as explained in 1.
- 3** treatment of Rerouting requests received from the remote switch: a rerouting request is only processed if the remote capability is of second or third type, i.e. DV2x or DV3x, where x is either 'I' or 'O' as explained above in 1.

Table 54
Remote Capability Meanings

Remote capability	Meaning for Operation Coding	Meaning for Notification Information	Meaning for Rerouting request
None of the following remote capabilities.	Not applicable (nothing sent)	Not <u>sent</u>	Not processed when <u>received</u>
DV1O	<u>Sent</u> coded as Object Identifier	<u>Sent</u>	Not processed when <u>received</u>
DV1I	<u>Sent</u> coded as Integer Value		
DV2O	<u>Sent</u> coded as Object Identifier	Not <u>Sent</u>	Processed when <u>received</u>
DV2I	<u>Sent</u> coded as Integer Value		
DV3O	<u>Sent</u> coded as Object Identifier	<u>Sent</u>	Processed when <u>received</u>
DV3I	<u>Sent</u> coded as Integer Value		

LD 17 – Configure or remove remote capabilities D-channel for QSIG Call Diversion Notification.

Prompt	Response	Description
REQ:	CHG	Change existing data.
TYPE:	ADAN	Action device and number.
ADAN	CHG DCH x	Configure new remote capabilities on D-channel x.
...		
IFC	ISGF	QSIG Interface ID for ISO with GF capability.
...		
RLS	23	Release 23 and later.
...		
RCAP		QSIG SS Call Diversion Notification remote capability. Configure sending of QSIG Diversion Notification Information, treatment of Rerouting request and coding of operations. If coded as Object Identifier, the remote capability ends with 'O', whereas for Integer Value, the remote capability ends with 'I'. Only one remote capability is allowed. Refer to Table 1 for further information.
	DV1I	Diversion information is sent to remote switch.
	DV1O	Diversion information is sent to remote switch.
	DV2I	Rerouting requests from remote switch are processed.
	DV2O	Rerouting requests from remote switch are processed.
	DV3I	Diversion information is sent to remote switch.
	DV3O	Rerouting requests from remote switch are processed.
		Precede with 'X' to remove capability.

LD 16 – Configure Remote Capability for a QSIG ISGF interface.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	RDB	Route Data Block.
CUST	xx	Customer number.
ROUT	0 - 511 0-127	Route Number. For Option 11C.
...		
IFC	ISGF	QSIG Interface ID for ISO with GF capability.
...		
RCAP		QSIG SS Call Diversion Notification remote capability. Configure sending of QSIG Diversion Notification Information, treatment of Rerouting request and coding of operations. If coded as Object Identifier, the remote capability ends with 'O', whereas for Integer Value, the remote capability ends with 'I'. Only one remote capability is allowed. Refer to Table 1 for further information.
	DV1I	Diversion information is sent to remote switch.
	DV1O	Diversion information is sent to remote switch.
	DV2I	Rerouting requests from remote switch are processed.
		Rerouting requests from remote switch are processed.
	DV2O	Diversion information is sent to remote switch. Rerouting requests from remote switch are processed.
		Diversion information is sent to remote switch.
	DV3I	Diversion information is sent to remote switch.
	DV3O	Rerouting requests from remote switch are processed.
		Precede with 'X' to remove capability.

LD 10 – Configure QSIG Diversion Notification on analog (500/2500 type) telephones

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data.
TYPE:	500	Telephone type.
...		
TN	l s c u c u	Terminal Number. For Option 11C.
...		
DN	x...x yyy	Directory Number and Calling Line Identification entry (Range is (0) - value entered for SIZE prompt in LD 15 minus one).
...		
- CPND	aaa	Calling Party Name Display where: NEW = Add data block. CHG = Change existing data block. OUT = Remove existing data block.
--CPND_LANG	aaa	Calling Party Name Display Language where: (ROM) = Roman. KAT = Katakana.
-- NAME	aaaa bbbb	Calling Party Name Display Name where: First name Last name.
...		
CLS	(DNO3) DNO1 DNO2	QSIG Call Diversion Notification options for calling party. Notification with diverted-to party's number and name. No notification. Notification without diverted-to party's number and name.

	(DNDY) DNDN	QSIG Call Diversion Notification options concerning forwarded- to party. Notification with Called party's number and name. Notification without Called party's number and name.
	CNDA	Call Party Name Display Allowed
	CFXA	Call Forward to External DN Allowed.
	CFTA	Call Forward by Call Type Allowed.
	DDGA	Directory Number Display on other set Allowed.
	FNA	Call Forward No Answer Allowed.
	HTA	Hunting Allowed.
	NAMA	Name Display on other set Allowed or (Denied).

LD 11– Configure QSIG Diversion Notification on Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data.
TYPE:	xxxx	Telephone type, where: xxxx = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616 or 3000.
...		
TN	l s c u c u	Terminal Number. For Option 11C.
...		
FDN	x...x	Flexible Call Forward No Answer DN for an Internal Directory Number.
...		
CLS	(DNO3) DNO1 DNO2	QSIG Call Diversion Notification options for calling party. Notification with diverted-to party's number and name. No notification. Notification without diverted-to party's number and name.
	(DNDY) DNDN	QSIG Call Diversion Notification options concerning forwarded- to party. Notification with Called party's number and name. Notification without Called party's number and name.
	CNDA	Call Party Name Display Allowed
	CFXA	Call Forward to External DN Allowed.
	CFTA	Call Forward by Call Type Allowed.
	DDGA	Directory Number Display on other set Allowed.
	FNA	Call Forward No Answer Allowed.
	HTA	Hunting Allowed.
	NAMA	Name Display on other set Allowed or (Denied).

...		
RCO	(0) - 2	Ringing Cycle Option for Call Forward No Answer.
EFD	x...x	Call Forward No Answer Directory Number for external calls
...		
- CPND	aaa	Calling Party Name Display where: NEW = Add data block. CHG = Change existing data block. OUT = Remove existing data block.
- -CPND_LANG	aaa	Calling Party Name Display Language where: (ROM) = Roman. KAT = Katakana.
- - NAME	aaaa bbbb	Calling Party Name Display Name where: First name Last name.

LD 95 – Modify Call Party Name Display data block.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	CPND	Call Party Name Display data block.
CUST	xx	Customer number.
...		
RESN	YES	Display Redirection reason allowed. (NO) = Display Redirection reason denied (default).
- CFWD	aaaa	Mnemonic for Call Forward All Call display. (F) = default
- CFNA	aaaa	Mnemonic for Call Forward No Answer display (N) = default.
- HUNT	aaaa	Mnemonic for Call Forward Busy display. (B) = default

LD 95 – Define Name for telephones.

Prompt	Response	Description
REQ	NEW	Add new data.
TYPE	NAME	Name.
CUST	xx	Customer number.
...		
DN	x..x	Directory Number.
- NAME	a..a	Calling Party Name Display in ASCII characters.

LD 11 – Configure the name that is to be displayed on the Forwarded-to (diverted) Party's set.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	xxxx	Telephone type, where: xxxx = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616 or 3000.
TN	l s c u c u	Terminal Number. For Option 11C.
...		
CLS	DNDA	Dialed Name Display Allowed. (DNDD)= Dialed Name Display Denied (default).

Note: LD 81 may be used to print counting or listing queries pertaining to the new Classes of Service, by entering CNT or LST against the REQ prompt, and the appropriate COS against the FEAT prompt.

Note: LD 83 may be used may be used to print the new Classes of Service in the TN blocks, by entering TNB against the REQ prompt, and the appropriate COS against the CLS prompt.

Feature operation

No specific operating procedures are required to use this feature.